

ARMY ENGINEER DISTRICT, SACRAMENTO  
CORPS OF ENGINEERS  
SACRAMENTO, CALIFORNIA

SPK-02560.1  
Apr 86  
Revised Apr 89

TO: Architect-Engineers and District Personnel:

1. The attached revised guide specification supercedes the previous guide, BITUMINOUS PRIME COAT, SPK-2R, dated April 1986, and is for use in the preparation of project specifications.

#### GENERAL NOTES

Para 1

Para 2

#### TECHNICAL NOTES

Para A

Para B

Para C

#### TEXT REVISIONS

Para 1.1

NOTE: A-E's should read all the TECHNICAL NOTES located at the beginning of this guide specification and edit the specification accordingly.

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### GENERAL NOTES

1. This guide specification is to be used in the preparation of contract specifications in accordance with the Sacramento District Specification Manual. It will not be made a part of a contract merely by reference; pertinent portions will be copied verbatim into the contract documents.
2. Where numbers, symbols, words, phrases, clauses, or sentences in this specification are enclosed in the following manner: [ ], a choice or modification must be made; delete inapplicable portion(s) carefully. Where blank spaces occur in sentences, insert the appropriate data. Where entire paragraphs are not applicable, they should be deleted completely.

### TECHNICAL NOTES

- A. CEGS-02559, BITUMINOUS PRIME COAT, is totally inadequate for those situations where an emulsified asphalt is required. Therefore, the District Specification 02560 has been written.
- B. The section number will be inserted in the specification heading and prefixed to each page number in project specifications.
- C. Paragraph 1: The listed designations for publications are those that were in effect when this guide specification was being prepared. These designations are updated when necessary by District Instruction, and references in project specifications need be no later than in the current District Instruction for this guide specification. To minimize the possibility of error, the letter suffixes, amendments, and dates indicating specific issues should be retained in Paragraph 1 and omitted elsewhere in the project specification.

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#### BITUMINOUS PRIME COAT

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## SECTION 02560.1

### BITUMINOUS PRIME COAT

#### PART 1 - GENERAL

1. APPLICABLE PUBLICATIONS: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1.1 American Society for Testing and Materials (ASTM) Publications:

D 140-70 (R 1981)	Sampling Bituminous Materials.
D 977-86	Emulsified Asphalt.
D 1250-80 (R 1984)	Petroleum Tables
D 2397-84	Cationic Emulsified Asphalt.
D 2995-84	Determining Application Rate of Bituminous Distributors.

2. EQUIPMENT:

2.1 Bituminous Distributor: The distributor shall be mounted on pneumatic tires of such size and number as to prevent rutting, shoving, or otherwise damaging the base surface or other layers in the pavement structure. It shall be designed and equipped to spray the bituminous material in a uniform double or triple lap at the specified temperature, at readily determined and controlled rates with an allowable variation from the specified rate of not more than plus or minus 5 percent, and at variable widths. Distributor equipment shall include a separate power unit for the bitumen pump, full-circulation spray bars, tachometer, pressure gages, volume-measuring devices, adequate heaters for heating of materials to the proper application temperature, a thermometer for reading the temperature of tank contents, and a hand hose attachment suitable for applying bituminous material manually to areas inaccessible to the distributor. The distributor shall be equipped to circulate and agitate the bituminous material during the heating process.

2.2 Brooms and Blowers: Brooms and blowers shall be suitable for cleaning the surfaces to which the prime coat is to be applied.

2.3 Storage Tanks: Tanks shall be capable of heating the bituminous material, under effective and positive control at all times, to the required temperature. Heating shall be accomplished by steam coils, hot oil, or electricity. An armored thermometer shall be affixed to the tank so that the temperature of the bituminous material may be read at all times.



### 3. SAMPLING AND TESTING:

3.1 Sampling: The samples of bituminous material, unless otherwise specified, shall be taken in accordance with ASTM D 140. [Samples of sufficient size shall be submitted for testing and approval not less than days before commencing construction. Additional samples of materials shall be furnished as required during construction.]

3.2 Testing: The materials shall be tested to establish compliance with the specified requirements. Testing will be the responsibility of the Contractor and shall be performed by an approved commercial testing laboratory or by Contractor testing subject to approval by the Contracting Officer. Before delivery of bituminous materials, certified copies of the test reports establishing compliance with specifications specified herein and in referenced publications shall be submitted to the Contracting Officer.

3.3 Calibration Test: The Contractor shall furnish all equipment, materials, and labor necessary to calibrate the bituminous distributor. Calibration shall be made with the approved job material and prior to applying the prime coat material to the prepared surface. Calibration of the bituminous distributor shall be in accordance with ASTM D 2995. A copy of the test results shall be submitted to the Contracting Officer before the bituminous distributor is used on the job.

4. WEATHER LIMITATIONS: The prime coat shall be applied only when the base course is dry enough to promote uniform coverage and the desired penetration into the treated surface. The prime coat shall be applied only when the atmospheric temperature in the shade is 50 degrees F. or above and when the temperature has not been below 35 degrees F. for the 12 hours prior to the application.

5. WAYBILLS AND DELIVERY TICKETS: Copies of waybills and delivery tickets shall be submitted during progress of the work. Before the final statement is allowed, the Contractor shall file with the Contracting Officer certified waybills and/or certified delivery tickets for all bituminous materials used in the construction of the pavement covered by this section of the specifications. The Contractor shall not remove bituminous material from delivery or storage units until the initial outage and temperature measurements have been taken. The delivery or storage units will not be released until the final outage has been taken.

6. MEASUREMENT: The bituminous material to be paid for shall be the measured quantities used in the accepted work provided the measured quantities are not 10 percent over the specified application rate. Measured quantities

shall be expressed in [tons, 2000 pounds] [gallons at 60 degrees F. Volumes measured at temperatures other than 60 degrees F. shall be corrected in accordance with ASTM D 1250 for liquid asphalt].

7. PAYMENT: The quantities of bituminous material, determined as specified in paragraph MEASUREMENT will be paid for at the respective contract unit prices in the bid schedule on which the contract is based, which shall constitute full compensation for all operations necessary to complete the work as specified herein.

## PART 2 - PRODUCTS

8. BITUMINOUS MATERIAL: Emulsified asphalt and cationic emulsified asphalt shall conform to ASTM D 977 [SS-1] [SS-1h] or D 2397 [CSS-1] [CSS-1h].

## PART 3 - EXECUTION

9. PREPARATION OF SURFACE: The area to be treated with prime coat shall first be scarified to a depth of one inch, sprayed with the previously diluted material at a rate of 0.1 to 0.3 gallons per square yard, mixed, shaped, and recompact.

### 10. PRIME COATING:

10.1 Preparation of Emulsion: The emulsion is diluted by adding an equal volume of compatible water. If the emulsion is to be diluted in the field, test first by placing an equal volume of emulsion and compatible water in a glass quart jar (do not use a metal container, as it could cause the emulsion to "break"); mix for 1 minute. If the emulsion "breaks", another water source or a different emulsion is required.

10.2 Application Rate: Bituminous material for the prime coat shall be applied in quantities of not less than 0.10 gallon nor more than 0.30 gallon per square yard of pavement surface. The exact quantities within the range specified, which may be varied to suit field conditions, will be determined by the Contractor and approved by the Contracting Officer.

10.3 Application Temperature: Emulsion application temperature shall provide an application viscosity between 10 and 60 seconds, Saybolt Furol, or between 20 and 120 centistokes, kinematic. The temperature viscosity relation shall be furnished to the Contracting Officer. Application temperature shall be as follows:

SS-1, CSS-1, SS-1h, CSS-1h	70 - 140 degrees F.
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10.4 Application: Following preparation and subsequent inspection of the surface, the prime coat shall be applied at the specified rate with uniform distribution over the surface to be treated. To obtain uniform application of

the prime coat on the surface treated at the junction of previous and subsequent applications, building paper shall be spread on the surface for a sufficient distance back from the ends of each application so that the prime coat may be started and stopped on the paper. Immediately after application, the building paper shall be removed and destroyed. All areas and spots missed by the distributor shall be properly treated with the hand spray. Following

application of the prime material, the surface shall be allowed to cure without being disturbed for a period of at least 48 hours or longer, as may be necessary to attain penetration into the treated course and evaporation of the volatiles from prime material. As directed, sand shall be spread to effectively blot up and cure any excess bituminous material. Until the succeeding layer of pavement is placed, the primed surface shall be maintained by protecting the surface against damage and by repairing and repriming deficient areas at no additional cost to the Government.

11. CONSTRUCTION QUALITY CONTROL: Attention is directed to SECTION: CONSTRUCTION QUALITY CONTROL which requires the Contractor to perform quality control inspection, testing, and reporting.

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- REMINDER -

Located at the front of these specifications are the Contract Clauses, Special Clauses and Division I GENERAL REQUIREMENTS of the Technical Specifications, which apply to every aspect of this contract including the work in this section whether performed by Prime Contractor, subcontractor, or supplier.